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1. A burst signal detection circuit comprising:  
a DC variation removing circuit for  
detecting the bottom level or the peak level of an input  
signal and removing the DC level variation of the input  
signal based on the bottom level or the peak level; and  
an amplitude identifying circuit for  
detecting the presence or absence of a burst signal in  
said input signal based on the output signal from the DC  
variation removing circuit;  
said amplitude identifying circuit  
including:  
an amplitude detection circuit for  
detecting the maximum amplitude of the output signal of  
said DC variation removing circuit;  
a threshold level control circuit for  
controlling a threshold level; and  
a comparator circuit for comparing the  
output level of said amplitude detection circuit with  
said threshold level and outputting a detection signal  
indicating the presence or absence of the burst signal.
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2. The burst signal detection circuit according to  
claim 1, wherein said DC variation removing circuit  
includes a bottom detection circuit or a peak detection  
circuit for detecting the bottom level or the peak level,  
respectively, of the input signal, and a differential  
amplifier for differentially amplifying the difference  
between the input signal and the output signal from said  
bottom detection circuit or said peak detection circuit.
3. The burst signal detection circuit according to  
claim 1, wherein said DC variation removing circuit  
includes:  
a bottom detection circuit or a peak  
detection circuit for detecting the bottom level or the  
peak level, respectively, of the input signal;  
a level shift circuit for shifting the  
output signal of said bottom detection circuit or said

peak detection circuit by a predetermined value; and  
a differential amplifier for amplifying  
the difference between the output signal of said level  
shift circuit and the input signal.

5        4. The burst signal detection circuit according to  
claim 1, wherein said amplitude identifying circuit  
includes:

10                a peak detection circuit or a bottom  
detection circuit for detecting the maximum level or the  
minimum level, respectively, of the output signal from  
the DC variation removing circuit;

              a threshold level control circuit for  
generating a threshold level; and

15                a comparator circuit for comparing the  
output level of said peak detection circuit or said  
bottom detection circuit with said threshold level.

20        5. The burst signal detection circuit according to  
claim 1, wherein said amplitude identifying circuit  
includes a peak detection circuit or a bottom detection  
circuit for detecting the maximum level or the minimum  
level, respectively, of the output signal from the DC  
variation removing circuit, a threshold level control  
circuit for generating a threshold level by shifting the  
output level of said bottom detection circuit or said  
25        peak detection circuit by a predetermined value; and

              a comparator circuit for comparing the  
output level of said peak detection circuit or said  
bottom detection circuit with said threshold level.

30        6. The burst signal detection circuit according to  
claim 1, wherein said amplitude identifying circuit  
includes:

35                a peak detection circuit and a bottom  
detection circuit for detecting the maximum level and the  
minimum level, respectively, of the output signal from  
the DC variation removing circuit, a threshold level  
control circuit for generating a first threshold level by  
shifting the output level of said bottom detection

circuit by a predetermined value and generating a second threshold level by shifting the output level of said peak detection circuit by a predetermined value; and

5 a comparator circuit for comparing said first threshold level and said second threshold level with each other.

7. The burst signal detection circuit according to claim 1, wherein said threshold level control circuit includes a temperature compensating circuit for changing  
10 said threshold level in accordance with the temperature change, said temperature compensating circuit being so configured as to compensate for the variation of the gain due to the temperature change.

8. The burst signal detection circuit according to claim 1, wherein said threshold level control circuit includes a reference voltage circuit for changing said  
15 threshold level with the source voltage change, said reference voltage circuit being so configured as to compensate for the variation of the gain due to the supply voltage change.  
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9. The burst signal detection circuit according to claim 1, further comprising a photo-diode for receiving an optical signal and a preamplifier for converting the current signal from said photo-diode into a voltage  
25 signal, wherein the arrival of a burst signal is detected from the output signal of said preamplifier.

Sub 10. A burst signal detection circuit comprising:  
a DC variation removing circuit for  
30 detecting the bottom level or the peak level of an input signal and removing the DC level variation of the input signal based on the bottom level or the peak level;  
a signal amplifier for amplifying the  
output signal of said DC variation removing circuit; and  
an amplitude identifying circuit for  
35 detecting the presence or absence of a burst signal in said input signal based on the output signal from said signal amplifier;

said amplitude identifying circuit  
including:

an amplitude detection circuit for  
detecting the maximum amplitude of the output signal of  
5 said signal amplifier;

a threshold level control circuit for  
controlling the threshold level, and a comparator circuit  
for comparing the output level of said amplitude  
10 detection circuit with said threshold level and  
outputting a detection signal indicating the presence or  
absence of the burst signal.

11. The burst signal detection circuit according to  
claim 10, wherein said DC variation removing circuit  
includes a bottom detection circuit or a peak detection  
15 circuit for detecting the bottom level or the peak level,  
respectively, of the input signal, and a differential  
amplifier for differentially amplifying the difference  
between the input signal and the output signal from said  
bottom detection circuit or said peak detection circuit.

20 12. The burst signal detection circuit according to  
claim 10, wherein said DC variation removing circuit  
includes:

a bottom detection circuit or a peak  
detection circuit for detecting the bottom level or the  
25 peak level, respectively, of the input signal;

a level shift circuit for shifting the  
output signal of said bottom detection circuit or said  
peak detection circuit by a predetermined value; and

a differential amplifier for amplifying  
30 the difference between the output signal of said level  
shift circuit and the input signal.

13. The burst signal detection circuit according to  
claim 10, wherein said amplitude identifying circuit  
includes:

35 a peak detection circuit or a bottom  
detection circuit for detecting the maximum level or the  
minimum level, respectively, of the output signal from

the DC variation removing circuit;

a threshold level control circuit for generating a threshold level; and

5 a comparator circuit for comparing the output level of said peak detection circuit or said bottom detection circuit with said threshold level.

10 14. The burst signal detection circuit according to claim 10, wherein said amplitude identifying circuit includes a peak detection circuit or a bottom detection circuit for detecting the maximum level or the minimum level, respectively, of the output signal from the DC variation removing circuit, a threshold level control circuit for generating a threshold level by shifting the output level of said bottom detection circuit or said peak detection circuit by a predetermined value; and

15 a comparator circuit for comparing the output level of said peak detection circuit or said bottom detection circuit with said threshold level.

20 15. The burst signal detection circuit according to claim 10, wherein said amplitude identifying circuit includes:

25 a peak detection circuit and a bottom detection circuit for detecting the maximum level or the minimum level, respectively, of the output signal from the DC variation removing circuit, a threshold level control circuit for generating a first threshold level by shifting the output level of said bottom detection circuit by a predetermined value and generating a second threshold level by shifting the output level of said peak detection circuit by a predetermined value; and

30 a comparator circuit for comparing said first threshold level and said second threshold level with each other.

35 16. The burst signal detection circuit according to claim 10, wherein said threshold level control circuit includes a temperature compensating circuit for changing said threshold level in accordance with the temperature

change, said temperature compensating circuit being so configured as to compensate for the variation of the gain due to the temperature change.

5        17. The burst signal detection circuit according to claim 10, wherein said threshold level control circuit includes a reference voltage circuit for changing said threshold level with the supply voltage change, said reference voltage circuit being so configured as to compensate for the variation of the gain due to the supply voltage change.

10       18. The burst signal detection circuit according to claim 10, further comprising a photo-diode for receiving an optical signal and a preamplifier for converting the current signal from said photo-diode into a voltage signal, wherein the arrival of a burst signal is detected from the output signal of said preamplifier.

15       19. A burst signal detection circuit comprising an amplitude identifying circuit including:  
             an amplitude detection circuit for  
20       detecting the bottom level or the peak level of an input signal, for removing the DC level variation of the input signal based on said bottom level or said peak level and for detecting the maximum amplitude of said input signal;  
             a threshold level control circuit for  
25       controlling a threshold level; and  
             a comparator circuit for comparing the output level of said amplitude detection circuit with said threshold level and outputting a detection signal indicating the presence or absence of the burst signal.

30       20. The burst signal detection circuit according to claim 19, wherein said amplitude detection circuit includes a master bottom detection circuit or a master peak detection circuit for detecting the absolute minimum level or the absolute maximum level, respectively, of  
35       said input signal, respectively, and a slave peak detection circuit or a slave bottom detection circuit for detecting the relative maximum level or the relative

minimum level, respectively, of said input signal from the output level of said master bottom detection circuit or said master peak detection circuit.

21. The burst signal detection circuit according to  
5 claim 20, wherein a level hold capacitor in said slave peak detection circuit or said slave bottom detection circuit of said master-slave type amplitude detection circuit is connected to the output of said master bottom detection circuit or said master peak detection circuit.

10 22. The burst signal detection circuit according to claim 19, wherein said amplitude identifying circuit includes:

a peak detection circuit or a bottom  
detection circuit for detecting the maximum level or the  
15 minimum level, respectively, of the output signal from the DC variation removing circuit;

a threshold level control circuit for  
generating a threshold level; and

a comparator circuit for comparing the  
20 output level of said peak detection circuit or said bottom detection circuit with said threshold level.

23. The burst signal detection circuit according to  
claim 19, wherein said amplitude identifying circuit  
includes a peak detection circuit or a bottom detection  
25 circuit for detecting the maximum level or the minimum level, respectively, of the output signal from the DC variation removing circuit, a threshold level control circuit for generating a threshold level by shifting the output level of said bottom detection circuit or said  
30 peak detection circuit by a predetermined value; and

a comparator circuit for comparing the  
output level of said peak detection circuit or said  
bottom detection circuit with said threshold level.

24. The burst signal detection circuit according to  
35 claim 19, wherein said amplitude identifying circuit includes:

a peak detection circuit and a bottom

detection circuit for detecting the maximum level and the minimum level, respectively, of the output signal from the DC variation removing circuit, a threshold level control circuit for generating a first threshold level by  
5 shifting the output level of said bottom detection circuit by a predetermined value and generating a second threshold level by shifting the output level of said peak detection circuit by a predetermined value; and

a comparator circuit for comparing said  
10 first threshold level and said second threshold level with each other.

25. The burst signal detection circuit according to claim 19, wherein said threshold level control circuit includes a temperature compensating circuit for changing  
15 said threshold level in accordance with the temperature change, said temperature compensating circuit being so configured as to compensate for the variation of the gain due to the temperature change.

26. The burst signal detection circuit according to claim 19, wherein said threshold level control circuit includes a reference voltage circuit for changing said  
20 threshold level with the supply voltage change, said reference voltage circuit being so configured as to compensate for the variation of the gain due to the supply voltage change.  
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27. The burst signal detection circuit according to claim 19, further comprising a photo-diode for receiving an optical signal and a preamplifier for converting the current signal from said photo-diode into a voltage  
30 signal, wherein the arrival of a burst signal is detected from the output signal of said preamplifier.

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a4 } 28. A burst signal detection circuit comprising:  
a DC variation removing signal amplifier  
for detecting the bottom level or the peak level of an  
35 input signal, for removing the DC level variation of the input signal based on the bottom level or the peak level, and for amplifying said input signal; and

an amplitude identifying circuit for detecting the presence or absence of a burst signal in said input signal in said input signal based on the output signal from the DC variation removing signal amplifier;

said amplitude identifying circuit including:

an amplitude detection circuit for detecting the maximum amplitude of the output signal of said DC variation removing amplifier;

a threshold level control circuit for controlling the threshold level; and

a comparator circuit for comparing the output level of said amplitude detection circuit with said threshold level and outputting a detection signal indicating the presence or absence of the burst signal.

29. The burst signal detection circuit according to claim 28, wherein said DC variation removing signal amplifier includes:

a bottom detection circuit or a peak detection circuit for detecting the DC level variation of said input signal; and

an amplifier supplied with said input signal and the output signal of said bottom detection circuit or said peak detection circuit;

the negative phase output of said amplifier being fed back to the positive phase input side of said amplifier through a feedback resistor; and

the positive phase output of said amplifier being fed back to the negative phase input side of said amplifier through said peak detection circuit and a feedback resistor.

30. A burst signal detection circuit according to claim 28, wherein said DC variation removing signal amplifier includes a master-slave type automatic threshold control circuit having:

a master bottom detection circuit or a

master peak detection circuit for detecting the absolute minimum level or the absolute maximum level, respectively, of said input signal;

5 a slave peak detection circuit or a slave bottom detection circuit for detecting the relative maximum level or the relative minimum level, respectively, of said input signal from the output signal of said master bottom detection circuit or said master peak detection circuit; and

10 a voltage dividing circuit for generating a threshold level by dividing the output signal of said master bottom detection circuit or said master peak detection circuit and the output signal of said slave peak detection circuit or said slave bottom detection circuit.

15 31. The burst signal detection circuit according to claim 28, wherein said DC variation removing signal amplifier includes a master-slave type automatic threshold control circuit having:

20 a master bottom detection circuit or a master peak detection circuit for detecting the absolute minimum level or the absolute maximum level, respectively, of said input signal;

25 a voltage dividing circuit for generating a voltage divided signal by dividing the output signal of said master bottom detecting signal or said master peak detecting signal and said input signal; and

30 a slave peak detection circuit or a slave bottom detection circuit for generating a threshold level by detecting the relative maximum level or the relative minimum level, respectively, of said voltage divided signal from the output signal of said master bottom detection circuit or said master peak detection circuit.

35 32. The burst signal detection circuit according to claim 30, wherein the level hold capacitor of said slave peak detection circuit or said slave bottom detection circuit of said master-slave automatic threshold control

circuit is connected to the output of said master bottom detection circuit or said master peak detection circuit.

5        33. The burst signal detection circuit according to claim 31, wherein the level hold capacitor of said slave peak detection circuit or said slave bottom detection circuit of said master-slave automatic threshold control circuit is connected to the output of said master bottom detection circuit or said master peak detection circuit.

10       34. The burst signal detection circuit according to claim 28, wherein said amplitude identifying circuit includes:

15                a peak detection circuit or a bottom detection circuit for detecting the maximum level or the minimum level, respectively, of the output-single from the DC variation removing circuit;

                 a threshold level control circuit for generating a threshold level; and

20                a comparator circuit for comparing the output level of said peak detection circuit or said bottom detection circuit with said threshold level.

25       35. The burst signal detection circuit according to claim 28, wherein said amplitude identifying circuit includes a peak detection circuit or a bottom detection circuit for detecting the maximum level or the minimum level, respectively, of the output signal from the DC variation removing circuit, a threshold level control circuit for generating a threshold level by shifting the output level of said bottom detection circuit or said peak detection circuit by a predetermined value; and

30                a comparator circuit for comparing the output level of said peak detection circuit or said bottom detection circuit with said threshold level.

35       36. The burst signal detection circuit according to claim 28, wherein said amplitude identifying circuit includes:

                 a peak detection circuit and a bottom detection circuit for detecting the maximum level and the

minimum level, respectively, of the output signal from the DC variation removing circuit, a threshold level control circuit for generating a first threshold level by shifting the output level of said bottom detection circuit by a predetermined value and generating a second threshold level by shifting the output level of said peak detection circuit by a predetermined value; and

a comparator circuit for comparing said first threshold level and said second threshold level with each other.

37. The burst signal detection circuit according to claim 28, wherein said threshold level control circuit includes a temperature compensating circuit for changing said threshold level in accordance with the temperature change, said temperature compensating circuit being so configured as to compensate for the variation of the gain due to the temperature change.

38. The burst signal detection circuit according to claim 28, wherein said threshold level control circuit includes a reference voltage circuit for changing said threshold level with the supply voltage change, said reference voltage circuit being so configured as to compensate for the variation of the gain due to the supply voltage change.

39. The burst signal detection circuit according to claim 28, further comprising a photo-diode for receiving an optical signal and a preamplifier for converting the current signal from said photo-diode into a voltage signal, wherein the arrival of a burst signal is detected from the output signal of said preamplifier.

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